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Amendment
Attorney Docket No. 011.2B-11336-US01

Amendments To The Drawings:

None.

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Remarks

This Amendment is in response to the Office Action dated June 8, 2005.

Claims 1-20 §112 2d Paragraph

Claims 1-20 were rejected under 35 USC §112, 2d paragraph, as being indefinite as to the added limitations. The added limitation language that caused this rejection have been removed. Accordingly, the rejection is respectfully traversed.

Objection to Disclosure

The disclosure was objected to as to language "lastly integrated in integrating the volume of each particle of the silicon dioxide in ascending order until the integrated value reaches 95% of the total of the volumes of all particles contained in the silicon dioxide" (page 4, lines 13-16 and lines 23-26). The next full sentence clearly explains what is meant by the phrase in question. However, to comply with the Examiner's concerns, the objected to paragraphs have been rewritten without adding any new matter.

Claims 1-20 §103(a)

Claims 1-20 were rejected as being obvious over either Tredinnick et al, US Patent 3715842 ('842), or Inoue et al, US Patent Publication 2001-0003672 ('672) or Tsuchiya et al, US Patent Publication 2002/0095872 (Tsuchiya). An examination of the teachings and or suggestions of each of those references clearly shows that the rejection is improper and must be withdrawn.

Applicant asserts that the applied references do not teach or suggest all of the limitations of the claims. A review of the '842 patent shows that it teaches silica slurries that add water soluble cellulose as a thickener and that the particle size should be less than 100 μ m. Nothing in the patent even considers ranges in particle sizes let alone that a careful control of the particle size and ranges of particle size could be important.

Likewise, the '672 patent is art concerning edge polishing, but merely adds to the prior art that the average particle size may be between 70 to 2500 nm. Again, there is no mention of

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ranges of particle sizes, let alone the invention as currently claimed concerning a ration between the D_{95} to D_5 diameters. Clearly, there is nothing in the reference that would support an obviousness rejection.

Finally, the Tsuchiya publication also simply refers to average particle sizes, with reference being made to greater than 5nm, more preferably 10 nm or more and preferably 500 nm or less, most preferably 300 nm or less. There is no understanding in any of these references that it may be important to formulate a polishing composition with not just the average particle size, but with the range of particles being vital. There is nothing that nor suggested that would justify rejecting the claims based on any of the cited references, alone or in combination.

The prior Office Action admitted that the references are silent with respect to D_{95} and D_5 values as well as the ratios thereof. Instead, the rejection is based on the assumption that maybe the prior art's silicas could have D_{95} and D_5 values and ratios that fall within the claimed limitation of the instant claims. Evidence showing the contrary concerning the criticality of the claimed ratio was said to be required.

The very evidence asked for in the Office Action is supplied in the application as filed in the text and tables. Table 1 shows "Stain" conditions, with oo being best, o being scarcely no stain, many stains as ▲ and heavy stains as x. Table 3 shows the varying ratios. It can be clearly seen in the tables that the staining increases if the ratio exceeds 3.7. Thus, the very examples in the application along with the declaration of the inventors in filing the application support the criticality of the ratio. Declarations by the inventor Shinichiro Takami and Yutaka Inoue, one of the inventors of cited patent publication 2001-0003672, are attached which clearly affirms that the invention as claimed is patentable over the cited references and that there is criticality to the claimed ratios which is not known, taught or suggested by the cited art. The rejection is respectfully traversed.

Claims 1-8 and 10-20 §103(a) over Sasaki

Claims 1-8 and 10-20 were rejected as being obvious over Sasaki, US Patent 5,352,277 ('277). Again, the Office Action acknowledges that the reference is completely silent with respect to D_{95} and D_5 values, as well as any ratios. The comment is again made that absent any

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contrary evidence that the claimed ratio is critical, that the rejection would stand. Applicant again refers to the arguments made above that the application itself in the tables and text describing the tables clearly shows the criticality of the ratios as claimed. The rejection is respectfully traversed.

Claim 9 §103(a) over Sasaki v/ Tsuchiya

Claim 9 was rejected as being obvious over the combination of Sasaki, US Patent 5,352,277 ('277) in view of Tsuchiya et al., US Patent Publication 2002/0095872 (Tsuchiya). Nothing in the combination of the references provides any support for an obviousness rejection since none of the cited references teach or suggest that any range is desirable, let alone critical to prevent staining of the wafers. As a dependent claim, it is immediately allowable over the cited art since the base claim is allowable.

Claims 1-9 and 11-20 §103(a) Inoue

Claims 1-9 and 11-20 were rejected as being obvious over US Patent 6,280,652 ('652) to Inoue et al. A Declaration is attached by Inoue which supports Applicant's position that the claims are patentable over all references, including Inoue's own reference, since the range is indeed critical.

Claim 10 §103(a) Inoue v/ Tsuchiya

Claim 10 was rejected as being obvious over US Patent 6,280,652 ('652) to Inoue et al in view of Tsuchiya et al., US Patent Publication 2002/0095872 (Tsuchiya). As discussed above, the base claim is allowable, so this claim is patentable as well.

Claims 1-20 §103(a) over Koichi, Hagihara or Oshima v/ Tsuchiya

Finally, claims 1-20 were rejected as being obvious over either (1) Koichi et al., US Patent Publication 2002/0028636 or (2) Hagihara et al., US Patent 6,454,820 or (3) Oshima, US Patent Publication 2002/0194789 all in view of Tsuchiya et al., US Patent Publication 2002/0095872 (Tsuchiya). Each of the references are relied upon to teach polishing compositions that include silica with the claimed average particle size, an alkaline, thickener and

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water. Again, the crux of the patentability question here concerns what is not said or suggested by the prior art, concerning the range and the criticality of the D_{95} , D_5 ratios.

The three primary references all appear to involve the same assignee, presumably Kao Corporation based on the face of the publications and inventors. Those references key in on a ratio of D_{90} to D_{50} . They note a D_{10} value, but no mention is made of any range or ratio concerning the smaller particles.

Applicant has stressed that it is critical that the composition contains no silicon dioxide of small sizes in larger amounts. Small size silicon dioxide cannot easily be removed when adhered to the surface of wafers. (See page 8, line 33 to page 9, line 13). The primary references do not appreciate, teach or suggest this extremely critical limitation in producing a composition that must greatly limit these smaller particles. Without such a limitation, the compositions of the combination would still produce wafers that have unacceptable staining and haze. The rejection is respectfully traversed.

Conclusion

It is respectfully submitted that all of the claims, as amended, are patentable over the cited art.

Respectfully submitted,

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